

BEFORE THE OFFICE OF THE COMMISSIONER OF RAILROADS

STATE OF WISCONSIN

On the Commissioner's Own Motion for a Determination of the Adequacy of Warning Devices at the Grade Crossings of the Wisconsin and Southern Railroad Co. Tracks with Ten Streets in the City of Brodhead, Green County

9170-RX-150

Petition of Wisconsin Department of Transportation for a Determination of the Adequacy of Warning Devices at the Grade Crossings of the Tracks Operated by the Wisconsin & Southern Railroad Co. and Owned by the City of Fitchburg and the Village of Oregon with STH 92 (Main Street) and STH 104 (Rutland Avenue) in the Village of Brooklyn, Dane County

9170-RX-147

FINDINGS OF FACT AND ORDER

On July 16, 2002, the Commissioner of Railroads directed the staff of the Office of the Commissioner of Railroads (OCR) to investigate the adequacy of warning devices under §195.28, Stats., at the grade crossings of the Wisconsin and Southern Railroad Co. (WSOR) tracks with ten streets in the City of Brodhead, Green County.

The crossings are as follows:

9 <sup>TH</sup> Avenue East (CTH T)	392 454E / P 27.44
5 <sup>th</sup> Avenue East	392 456T / P 27.67
4 <sup>TH</sup> Avenue East	392 457A / P 27.73
3 <sup>RD</sup> Avenue East	392 458G / P 27.80
2 <sup>ND</sup> Avenue East	392 459N / P 27.85
Center Avenue (STH 11)	392 460H / P 27.92
2 <sup>ND</sup> Avenue West	392 462W / P 27.98
3 <sup>RD</sup> Avenue West	392 464K / P 28.03
4 <sup>TH</sup> Avenue West	392 466Y / P 28.11
5 <sup>TH</sup> Avenue West	392 467F / P 28.18

An OCR investigator inspected the crossings on October 8, 2002. No hearing was held.

## Findings of Fact

### THE COMMISSIONER FINDS:

The WSOR operates from two to four train movements per day over the crossing at a timetable speed of 30 mph. All of the crossings that are the subject of this order consist of one main line track, except 4<sup>th</sup> Avenue East, which also has one auxiliary track.

The speed limit is 25 mph on all streets that are the subject of this order. A motorist traveling at 25 mph requires a safe stopping distance of 165 feet. Each crossing is visible from in excess of this distance in each direction. Assuming a train speed of 30 mph, a motorist traveling at 25 mph needs to see a train when it is 270 feet from the crossing from a point 165 feet down the highway.

#### **Ninth Avenue East**

Ninth Avenue East is 24 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of 80° measured in the northeast quadrant. Ninth Avenue East carried an average daily traffic (ADT) of 2300 according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 60 feet in the northwest quadrant, 70 feet in the northeast quadrant, 120 feet in the southwest quadrant and 60 feet in the southeast quadrant. There have been three train-vehicle accidents that have occurred at this crossing since 1973. They occurred in 1985, 1993, and 1994, resulting in two injuries.

The exposure factor at this crossing is 4600 to 9200. The exposure factor equals the product of the number of trains per day and the number of highway vehicles per day, which yields a numerical value for the potential conflicts each day at the crossing. The Department of Transportation's Facilities Development Manual (FDM) recommends consideration of automatic flashing lights when the exposure factor at a crossing exceeds 5,000-7,000 in an urban area.

The crossing is presently protected with reflective crossbucks and stop signs. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of re-used flashing light signals is needed because of the high exposure and accident history.

The OCR previously issued an order in 9170-RX-147 upon petition of the Wisconsin Department of Transportation (DOT) to allow the removal of signals from the grade crossings of the tracks operated by the Wisconsin & Southern Railroad Co. and owned by the City of Fitchburg and the Village of Oregon with STH 92 (Main Street) (Crossing No. 177 896U) and STH 104 (Rutland Avenue) (Crossing No. 177 897B) in the Village of Brooklyn, Dane County.

DOT and the Village of Brooklyn plan to reconstruct STH 92 from the west limits of the Village of Brooklyn to USH 14 in the Town of Rutland in 2003. As part of the project, the DOT proposes to remove the crossings and the existing automatic flashing lights from the STH 92 and STH 104 crossings. There are currently no train operations over these crossings.

The DOT states that the signals at STH 92 (Main Street) and STH 104 (Rutland Avenue), which are being removed as part of a highway project, can be re-used (except for the batteries). These signals each consist of standard mast-mounted 12" incandescent automatic flashing lights with

motion sensors. These signals can be moved to the Ninth Avenue East crossing at a much lower cost than new signals. The order requires that new LED lamps be installed on this equipment. The WSOR shall re-use the signals from the STH 92 (Main Street) crossing at the Ninth Avenue East crossing.

*Light emitting diodes (LED)* are a relatively new application for crossing signals. The LED lamps replace the incandescent bulbs. LEDs have higher conspicuity, a wider cone of vision, and longer life than incandescent lights. LEDs are especially useful on east-west roadways where the rising and setting sun may make the signals difficult to see.

### **Fifth Avenue East**

Fifth Avenue East is 18 feet wide on the south side of the track, and 30 feet wide on the north side of the track. It intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Fifth Avenue East carried 250 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 50 feet in the northwest quadrant, greater than 800 feet in the northeast quadrant, 100 feet in the southwest quadrant and greater than 800 feet in the southeast quadrant. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 500 to 1000.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the poor sight distances from the safe stopping distance. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

### **Fourth Avenue East**

Fourth Avenue East is 22 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Fourth Avenue East carried an 250 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 50 feet in the northwest quadrant, 100 feet in the northeast quadrant, 70 feet in the southwest quadrant and 120 feet in the southeast quadrant. No train-vehicle accidents have occurred at this crossing since 1973. The crossing consists of a main line track and one auxiliary track.

The exposure factor at this crossing is 500 to 1000.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the poor sight distance from the safe stopping distance. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

### **Third Avenue East**

Third Avenue East is 28 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Third Avenue East carried 500 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 80 feet in the northwest quadrant, 100 feet in the northeast quadrant, 80 feet in the southwest quadrant and 60 feet in the southeast quadrant. The crossing currently has a single main track. The side track has been removed, however the south crossbuck is still located at the position for the side track. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 1000 to 2000.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the restricted sight distance from the safe stopping distance. The south crossbuck shall be relocated north to a point appropriate for the single track. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

### **Second Avenue East**

Second Avenue East is 26 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of 80° measured in the northeast quadrant. Second Avenue East carried 750 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 90 feet in the northwest quadrant, greater than 800 feet in the northeast quadrant, 40 feet in the southwest quadrant and 100 feet southeast quadrant. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 1500 to 3000.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the restricted sight distance from the safe stopping distance. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

### **Center Avenue (STH 11)**

Center Avenue (STH 11) is 44 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of 80° measured in the northeast quadrant. Center Avenue carried 10,600 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 40 feet in the northwest quadrant, 120 feet in the northeast quadrant, 60 feet in the southwest quadrant and 60 feet in the southeast quadrant. One train-vehicle accident occurred at this crossing since 1973. It occurred in 1975, with no injuries.

The exposure factor at this crossing is 21,200 to 42,400.

The crossing is presently protected with cantilevered flashing light signals. The existing warning devices are adequate.

### **Second Avenue West**

Second Avenue West is 45 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of 80° measured in the northeast quadrant. Second Avenue West carried 750 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 100 feet in the northwest quadrant, 60 feet in the northeast quadrant, 80 feet in the southwest quadrant and 70 feet in the southeast quadrant. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 1500 to 3000.

The crossing is presently protected with 12-inch flashing light signals. The existing warning devices are adequate.

### **Third Avenue West**

Third Avenue West is 26 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Third Avenue West carried 450 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 80 feet in the northwest quadrant, 100 feet in the northeast quadrant, 60 feet in the southwest quadrant and 40 feet in the southeast quadrant. One train-vehicle accident occurred at this crossing since 1973. It occurred in 1987, with no injuries.

The exposure factor at this crossing is 900 to 1800.

The crossing is presently protected with two wig-wag signals. Although wig-wags are an old technology, these signals are functional and useful, particularly at a location such as this with a low exposure. The existing warning devices are adequate.

### **Fourth Avenue West**

Fourth Avenue West is 26 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Fourth Avenue West carried 250 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 60 feet in the northwest quadrant, 60 feet in the northeast quadrant, 40 feet in the southwest quadrant and 40 feet in the southeast quadrant. Brush in both south quadrants severely restricts the view down the tracks from the safe stopping distance. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 500 to 1000.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning

devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the restricted sight distance from the safe stopping distance. Brush shall be cleared from the railroad right-of-way in all four quadrants. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

### **Fifth Avenue West**

Fifth Avenue West is 24 feet wide in the vicinity of the crossing and intersects the railroad tracks at an angle of about 80° measured in the northeast quadrant. Fifth Avenue West carried an 150 ADT according to 2000 DOT records. The sight distance available in each quadrant from the safe stopping distance is as follows: 80 feet in the northwest quadrant, 80 feet in the northeast quadrant, 140 feet in the southwest quadrant and 40 feet in the southeast quadrant. No train-vehicle accidents have occurred at this crossing since 1973.

The exposure factor at this crossing is 300 to 600.

The crossing is presently protected with reflective crossbucks. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety the installation of stop signs on the crossbuck posts is needed because of the restricted sight distance from the safe stopping distance. Signals are not warranted based on the low exposure factor and lack of accident history. There is adequate sight distance down the tracks from a stopped position.

**Source of funding:** The signal materials for the 9<sup>th</sup> Avenue East crossing will be provided by the state of Wisconsin from the STH 92 (Main Street) crossing in the Village of Brooklyn, Dane County. The cost to install the signals and any material cost associated with the LED lamps and any other necessary new equipment will be paid by the OCR from state funds.

The Commissioner will assist in finding a location to store the signals until they can be installed at 9<sup>th</sup> Avenue East, if necessary.

The City is responsible for the cost of the stop signs.

### **Conclusion on the Issue**

#### **THE COMMISSIONER CONCLUDES:**

1. That in order to adequately protect and promote public safety, it is necessary to install and maintain 12-inch LED automatic flashing lights at the crossing of the Wisconsin & Southern Railroad Co. tracks with 9<sup>th</sup> Avenue East in the City of Brodhead, Green County.

2. That in order to adequately protect and promote public safety, it is necessary to install and maintain stop signs at the crossings of the Wisconsin & Southern Railroad Co. tracks with 5<sup>th</sup> Avenue East, 4<sup>th</sup> Avenue East, 3<sup>rd</sup> Avenue East, 2<sup>nd</sup> Avenue East, 4<sup>th</sup> Avenue West, and 5<sup>th</sup> Avenue West in the City of Brodhead, Green County.

## Conclusion of Law

### THE COMMISSIONER CONCLUDES:

That the jurisdiction of the Office of the Commissioner of Railroads under §195.28, Stats., extends to this matter. Accordingly, the Office enters an order consistent with the findings of fact.

### Order

### THE COMMISSIONER ORDERS:

1. That the **Wisconsin and Southern Railroad Co.** shall install and maintain automatic 12" LED flashing lights signals with appropriate appurtenances in accordance with such plans as are filed with and approved by the Office of the Commissioner of Railroads at the crossing of its tracks with **Ninth Avenue East** at-grade in the City of Brodhead, Green County by **May 30, 2003** (Crossing No. 392 454E / P 27.44). The railroad is authorized to re-use the signal materials recovered from the crossing of **STH 92 (Main Street)** in the Village of Brooklyn, Dane County.

2. That the Wisconsin and Southern Railroad Co. shall submit to the Office of the Commissioner of Railroads signal and circuit plans with the cost estimate of its proposed installation and upon completion of the signal project, a detailed statement of the actual cost to the Office and to the Wisconsin Department of Transportation.

3. That the signal installation work herein ordered shall not begin until the district office of the Wisconsin Department of Transportation informs the railroad that they may start such work and such start notice will not be issued until appropriate federal aid or other funding arrangements have been assured. The cost of the new project initiated before the start notice will not be reimbursed with public funds and shall be the responsibility of the railroad.

4. That the **Wisconsin and Southern Railroad Co.** shall clear brush and trees from its right-of-way for 330 feet down the tracks in each direction from the Fourth Avenue West crossing by **December 31, 2002**.

5. That the **Wisconsin and Southern Railroad Co.** shall relocate the south crossbuck to a point in accordance with the Manual on Uniform Traffic Control Devices at the Third Avenue East crossing by **December 31, 2002**.

6. That the **City of Brodhead** shall install and maintain stop signs on the crossbucks on each approach to the crossings of the Wisconsin and Southern Railroad Co. tracks with **5<sup>th</sup> Avenue East, 4<sup>th</sup> Avenue East, 3<sup>rd</sup> Avenue East, 2<sup>nd</sup> Avenue East, 4<sup>th</sup> Avenue West, and 5<sup>th</sup> Avenue West** in the City of Brodhead, Green County by **December 31, 2002**.

7. That the Wisconsin and Southern Railroad Co. shall bear no part of the cost of the crossing signals installation, except for any cost assessed to the railroad pursuant to §195.60, Stats., for the investigation of this matter by the Office. The railroad shall not pass on those assessment costs either directly or indirectly.

8. That if the petitioner, railroad or any interested party objects to this order and requests a hearing within 20 days of the date of this order in writing, the Office will hold a public hearing.

9. That jurisdiction is retained.

Dated at Madison, Wisconsin, \_\_\_\_\_.

By the Office of the Commissioner of Railroads.

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Rodney W. Kreunen  
Commissioner of Railroads

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